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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/659,926

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Hicronymus Andriessen

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EXAMINER

KOSLOW, CAROL M

ART UNIT

PAPER NUMBER

1755

MAIL DATE

DELIVERY MODE

09/26/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/659,926

Applicant(s)

ANDRIESEN, HIERONYMUS

Examiner

C. Melissa Koslow

Art Unit

1755

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2007.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-42 is/are pending in the application.
- 4a) Of the above claim(s) 10-24 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9,25-38 and 40-42 is/are allowed.
- 6) ☒ Claim(s) 1-4, 6 and 7 is/are rejected.
- 7) ☒ Claim(s) 8 and 39 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

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This action is in response to applicant's amendment of 17 August 2007. The amendment to the claims have overcome the rejections over the article by Guglielmi et al. Applicant's arguments with respect to the remaining rejection have been fully considered but they are not persuasive.

Claims 10-24 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 5 March 2007.

This application contains claims 10-24 drawn to an invention nonelected with traverse. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-4, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 7,008,559.

This reference teaches manganese doped up-conversion luminescent chalcogenide nanoparticles, having a particle size of less than 100 nm, which overlaps the claimed range. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960). The manganese acts to spectrally sensitize the metal chalcogenide. The taught particles have the formula $(M_{1-z}N_z)_{1-x}Mn_xA$, where A is one or two chalcogenides

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selected from S, Se, Te and O, $0 < x \leq 1$, $0 < z \leq 1$, M can be Zn and N can be Pb (col. 9, lines 24-28). Thus the reference suggests $(\text{Zn}_{1-z}\text{Pb}_z)_{1-x}\text{Mn}_x\text{S}$. Lead sulfide and zinc sulfide have low solubility in each other and therefore would form a two phase particle in the overlapping range. The reference suggests the claimed nanoparticles.

Applicant argues that the suggested nanoparticle cannot have two phases since UCL takes place in a single host, i.e. a single phase. The reference is silent as to the number of phases in taught host. It is the dopant that causes the UCL, not the host. As long as the dopant is accepted in at least one of the phases in the host, the particle will exhibit UCL. Applicants have not shown that the suggested zinc lead sulfide host is not in two phases, that manganese is not acceptable in at least one of the phases of the host and that suggested nanoparticle does not exhibit UCL. The arguments are not convincing and thus the rejection is maintained.

Claims 9, 25-38 and 40-42 are allowable over the cited art of record.

Claims 8 and 39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 9, 25-31, 40 and 42 are allowable for the reasons given in the previous action. There is no teaching or suggestion in the cited art of record of a nanoparticle metal chalcogenide composite composed of a metal capable of forming a n-type semiconducting chalcogenide and 5 to less than 50 at% of Cu, Cr, Fe or Ni. Thus claims 32-38 and 41 are allowable. There is no teaching or suggestion in the cited art of record of the subject matter of claim 8, which is directed to a nanoparticle metal chalcogenide composite composed of a metal selected from the group consisting of Zn, Bi, In, Sn, Ta; a sensitizing metal selected from the group consisting of Ag, Pb,

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Cu, Bi, V, Cd and Ti and 5 to less than 50 at% of a metal capable of forming a p-type semiconducting chalcogenide. There is no teaching or suggestion in the cited art of record of the subject matter of claim 39, which is directed to a nanoparticle metal chalcogenide composite composed of a metal selected from the group consisting of Zn, Bi, In, Sn, Ta; a sensitizing metal selected from the group consisting of Ag, Pb, Cu, Bi, V and Cd and 5 to less than 50 at% of a metal selected from the group consisting of Cu, Cr, Fe, Pb and Ni.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cmk
September 21, 2007



C. Melissa Koslow
Primary Examiner
Tech. Center 1700